

Patent Application Serial No. 10/589,129

REMARKS

The amendment to claim 1 is supported in paragraphs 0044 and 0045 of the specification.

In response to the outstanding Office Action:

- (1) Claim 2 is rejected under 35 U.S.C. §112, second paragraph for omitting “second” before “throttle apparatus” in claim 2. Claim 2 is amended as the Examiner suggested.
- (2-3) Claims 1-4 are rejected under 35 U.S.C. §103(a) as being obvious over Lanciaux, US 4,621,438 in view of Itoh, US 2002/0046570. This rejection is respectfully traversed.

The Examiner asserts disclosure in Lanciaux’s Figs. 15/16 of a clothes dryer with a closed refrigerant path consisting of compressor 149, radiator 150, 1st throttle 152, heat exchanger (no reference numeral), and evaporator 151.

The Examiner asserts that the heat exchanger is shown in Fig. 16 and not in Fig. 15; however, these two figures apparently show the same embodiment (see Lanciaux at col. 3, lines 1-16), and only two heat exchangers are seen in Fig. 16 (element 156 is a lint screen). Lanciaux itself mentions no heat exchanger; it states (col. 9, line 22), “The heat pump system 142 comprises a compressor 149, a condenser 150, an evaporator 151, and a thermostatic expansion valve 152 interposed between the condenser and the evaporator.”

With respect, there is no actual support for the asserted heat exchanger in Lanciaux, that is, no support for a *third* heat exchanger, in addition to the condenser 150 and evaporator 151.¹⁴

¹⁴ Lanciaux refers to these as “heat exchangers” at col. 10, line 1, “Turning next to FIG. 16, the structure of the condenser 150 and the evaporator 151 is there shown ... both the condenser 150 and the evaporator 151 constitute heat exchangers”

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The Examiner admits (bottom of page 2) that Lanciaux does not disclose the claimed additional (second) throttle, or the “parts [being] located in the order stated.” The Examiner relies on Itoh for these features, which are recited in the third paragraph of claim 1.

The Applicants respectfully disagree with the Examiner on the grounds that Itoh does not disclose a “circulation duct through which drying air is circulated and in which said radiator, said heat exchanger and said evaporator are disposed in this order from an upstream side of flow of the drying air,” as recited in claim 1. Itoh puts the heat exchanger 130 (“radiator”) into an air flow *separate from* the air flow of the and heat exchanger 120 (“evaporator”). Itoh writes, “[0041] An indoor heat exchanger 120 heat exchanges between *air blowing into a compartment* and the refrigerant. An outdoor heat exchanger 130 heat exchanges between *outdoor air* and the refrigerant” (emphasis added).

Applied Fig. 9 of Itoh does not show any duct for the radiator 130, but it does show a duct for the evaporator 120, including a blower and an air conditioning casing 300. The Itoh system is intended for an automobile, so the outdoor heat exchanger 130 would be separated from the passenger compartment by a metal firewall. The indoor heat exchanger 120 has a distinct inlet. Itoh’s paragraph 0049 states, “An air conditioning casing 300 forms a passage for air blowing into the vehicle compartment. An interior air inlet 301 for introducing indoor air and an exterior air inlet 302 for introducing outdoor air are provided [in] casing 300.”

A Claimed Difference. One difference between the Itoh heat exchanger 150 and the Applicants’ heat exchanger 34 is that the Itoh heat exchanger does not transfer heat to the air; instead, it transfers heat between two flows of refrigerant (the Examiner is referred to Itoh at

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paragraph 0047). Claim 1 already implied refrigerant-air heat exchangers prior to the present amendment, but now such a feature is recited more explicitly.

Claim 1 Could Not Be Reached. In sum, neither of the references discloses a third refrigerant-air heat exchanger in a duct along with the other two heat exchangers. Thus, no combination of the applied references could meet the claim language.

(4-5) The rejections of the dependent claims are traversed, *inter alia*, on the basis of the arguments for base claim 1 above.

In view of the aforementioned amendments and accompanying remarks, the application is submitted to be in condition for allowance, which action is requested.

Respectfully submitted,

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